



Workshop on Energy Recovery Linacs (ERL2015)

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ERL: Beam Instrumentation, Control Working Group charge

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Working group 3 will discuss beam instrumentation, controls, beam losses and halo management. For each diagnostics item, emphasis will be put on the difficulties due to the large dynamic range in beam charge (femto to nano Coulomb/bunch) and beam energy. We will also discuss the need for good separation between two beams before/after energy recovery.

The main topics to be addressed are:

- *Beam instrumentation for machine commissioning
 - *Beam instrumentation for beam tuning and operations
 - *Transverse beam profile measurement
 - *Beam orbit measurement
 - *Longitudinal beam diagnostics (bunch length, energy spread)
 - *Orbit Stabilization and feedback
 - *Beam Halo measurement / mitigation
 - *Dark current measurement / mitigation
 - *Beam Loss Detection
 - *Machine Interlock
 - *Requirements, Speed, Calibration, Stability (Reliability), etc
 - *Precise timing systems/ Synchronization
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Optionally, we can cover some topics about the control system.

- * Software framework (EPICS, DOOCS, TANGO, etc)
- *Machine modeling tools and migration between software frameworks
- *Software development environment
- * Archive/Retrieval
- *Alarm system, notification
- *Control room, Operator's Terminal design

Possible joint sessions with WG1

- *High charge / High current diagnostics for the injector

Possible joint sessions with WG4

- *Interlock and recovery of SRF cavity
- *Beam position measurement inside SC cavity (Cavity HOM Detection)